

Borehole

60-04-03

Log Event A

Borehole Information

Farm : <u>U</u>	Tank : <u>U-104</u>	Site Number : <u>299-W19-76</u>
N-Coord : <u>38,095</u>	W-Coord : <u>75,593</u>	TOC Elevation : <u>668.89</u>
Water Level, ft :	Date Drilled : <u>8/31/1974</u>	

Casing Record

Type : <u>Steel-welded</u>	Thickness : <u>0.280</u>	ID, in. : <u>6</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>125</u>	

Borehole Notes:

The top of the borehole casing is flush with the side of a berm that is about 3 ft higher than the surrounding U Tank Farm ground surface. Because the top of the casing is the zero depth reference for logging depth locations, an adjustment of 3 ft must be subtracted from data in this borehole when correlating with data from other boreholes in the U Tank Farm.

Equipment Information

Logging System : <u>1</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>03/1995</u>	Calibration Reference : <u>GJPO-HAN-1</u>	Logging Procedure : <u>P-GJPO-1783</u>

Log Run Information

Log Run Number : <u>1</u>	Log Run Date : <u>9/28/1995</u>	Logging Engineer: <u>Alan Pearson</u>
Start Depth, ft.: <u>125.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>63.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>2</u>	Log Run Date : <u>9/29/1995</u>	Logging Engineer: <u>Alan Pearson</u>
Start Depth, ft.: <u>0.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>64.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>



Spectral Gamma-Ray Borehole
Log Data Report

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Borehole

60-04-03

Log Event A

Analysis Information

Analyst : S.E. Kos

Data Processing Reference : P-GJPO-1787

Analysis Date : 5/13/1996

Analysis Notes :

This borehole was logged in two log runs. The pre- and post-field verification spectra indicate that the logging system was operating properly during data collection. The energy/channel drift observed during the logging runs did not exceed the search parameters of the processing software, and multiple energy calibrations were not required to process the data. A data overlap occurred at a depth of about 63 ft when the same depth interval was logged between the log runs. The calculated concentrations of K-40 and Th-232 were within the statistical uncertainty of the measurements, indicating acceptable repeatability. The repeatability of the U-238 was not within the uncertainty range of the error bars. The elevated U-238 concentrations calculated for the first logging run may be indicative of buildup of radon within the borehole. The second log run data were acquired after the borehole vented the radon, which produced lower U-238 concentrations.

The casing thickness is presumed to be 0.280 inch (in.), on the basis of published thickness for schedule-40, 6-in. steel casing. Casing-correction factors for a 0.280-in.-thick steel casing were applied during analysis.

Cs-137 was the only man-made radionuclide detected. It occurred from the ground surface to a depth of 10 ft, intermittently at depths from 10 to 15 ft, at a few isolated locations, and at the bottom of the borehole. The maximum Cs-137 concentration of almost 0.8 pCi/g was measured at a depth of 3 ft.

Details regarding the interpretation of the data for this borehole are presented in the Tank Summary Data Report for tank U-104.

Log Plot Notes:

Separate log plots show the man-made (e.g., Cs-137) and the naturally occurring radionuclides (K-40, U-238, and Th-232). The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations.

A combination plot includes both the man-made and natural radionuclides, in addition to the total gamma derived from the spectral data and the Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data. No attempt has been made to adjust the depths of the gross gamma logs to coincide with the SGLS data.

Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the minimum detection level (MDL). The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.